Quality of life following LASIK surgery at a tertiary center in North India

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Abstract. *Background and aim:* Laser-assisted in situ keratomileusis (LASIK) refractive surgery is a cutting-edge and developing area of Ophthalmology. Reshaping the cornea during refractive surgery helps patients become less dependent on glasses or contact lenses. The aim of the present study was to evaluate the visual outcome, quality of life, and patient satisfaction following LASIK surgery at a tertiary care center in North India using the National Eye Institute Refractive Error Quality of Life (NEIRQL-42) questionnaire. *Methods:* NEI-RQL, a 42-item measure with 13 subscales. The questionnaire was administered to a sample size of 71 patients who underwent LASIK surgery at a tertiary center in North India. Data were collected pre- and post-surgery (1,3,6 month post-LASIK) for myopic refractive error. Statistical analysis was done using the Friedman test and Wilcoxon signed-rank test. *Results:* The mean pre-operative spherical equivalent (SE) was -4.19 ± 2.28D in the right eye and -4.26 ± 2.28D in the left eye and post-op SE -0.06 ± 0.29 (P<0.01). The largest improvements (>25 points) on the 0 to 100 possible score range, were seen in activity limitations, dependence on correction, appearance, and satisfaction with correction subscales. The subscale glare showed a statistically significant difference (worsening) whereas a non-significant change (P= > 0.05) was recorded only in the sub-optimal correction subscale. *Conclusions:* The NEIRQL-42 is a reliable tool to evaluate vision-related changes in quality of life after LASIK surgery in the Indian population. The best surgical expectancy and QoL can be expected at 6 months following surgery. (www.actabiomedica.it)

Key words: LASIK, patient satisfaction, quality of life, questionnaire

Introduction

Laser-assisted in situ keratomileusis (LASIK) is one of the most common laser surgical techniques for correcting refractive errors (myopia, hypermetropia, and astigmatism) (1). LASIK refractive surgery is an innovative and evolving field of Ophthalmology. The main goal of refractive surgery is to reduce dependency on glasses or contact lenses by reshaping the cornea. Refractive surgery has made it possible for individuals to work in professions formerly closed to them owing to their refractive errors. It is widely acknowledged that LASIK eliminates refractive errors as well as reduces

dependency on spectacles and contact lenses (2). Besides**,** the safety and efficacy of LASIK have been extensively established and documented (3). In this innovative technique, corneal curvature is reshaped with the help of an excimer laser that precisely removes stromal tissue (4). With the advent of custom ablation, a paradigm shift has been established in refractive surgery (5,6).

The results of refractive surgeries are categorized by standard clinical ways such as post-operative Unaided Visual Acuity (UVA) and residual refractive error (7). The disparity between a surgeon's definition of success and a patient's perception of success

highlights the significance of patient-perspective quality of life. Patients are more concerned with their vision and its impact on their daily lives (8). As a result, feedback from the patients on the quality of life and their co-relation with the surgical outcome can assist in the modification of the existing treatment modalities. They may, however, be unrelated to the patient's post-operative expectations and vision improvement (9). Patients have also experienced additional symptoms such as glare, halos, starbursts, or dry eye after LASIK, which may significantly alter their quality of life and satisfaction with the surgery (10). For this purpose, the National Eye Institute has designed a questionnaire, named "National Eye Institute Refractive Error Quality of Life (NEI RQL- 42) questionnaire" which is a well-designed and validated questionnaire (11,12). The QoL and patient satisfaction following LASIK refractive surgery have been extensively evaluated in the literature so far, particularly in Western countries. In India, Patel et al. (7) assessed the functional outcome and patient satisfaction after LASIK surgery in the Northwestern Indian population using a 14-item questionnaire. There exists a void in the literature in terms of QoL studies in the Indian population following LASIK surgery. Therefore, the present study is designed to evaluate the quality of life, and patient satisfaction following LASIK in the North Indian population using a comprehensive and validated NEI RQL- 42 questionnaire.

Materials and methods

Study design: The prospective questionnaire-based study was carried out at a tertiary care center in North India. The study comprised 139 eyes of 71 patients between the ages of 18 and 40 years who underwent LASIK surgery to correct their refractive errors. The study included patients from Chandigarh and the adjoining North Indian states of Punjab, Haryana, and Himachal Pradesh. All patients who underwent LASIK surgery and fulfilled the study-related inclusion and exclusion criteria (described below) from January 2018 to December 2020 were included in the study.

Inclusion criteria: individuals from 18 to 40 years of age, and Myopia ≤ 6D

Exclusion criteria: Myopia > 6D.

Pre-operative examination: All enrolled patients underwent detailed ophthalmic examinations such as Uncorrected Visual Acuity (UCVA), Best Corrected Visual Acuity (BCVA) for distance, as well as cycloplegic and non-cycloplegic refraction. Snellen's chart was used to measure visual outcomes, which were then transformed into a standard logarithm of the minimum angle of resolution (logMAR) scoring system. Non-contact tonometry (NCT) was used to evaluate Intraocular Pressure (IOP). Further, a complete examination of the anterior segment was performed using slit-lamp biomicroscopy. A detailed fundus examination including peripheral retinal examination was done with slit-lamp biomicroscopy and indirect ophthalmoscopy.

Additionally, patients who had previously worn contact lenses were advised to discontinue them at least 2 weeks before the evaluation. Corneal topography was performed using Oculus Pentacam and wavefront aberrometry (iDesign Johnson & Johnson). The Oculus Pentacam was used to conduct pachymetry for corneal thickness. Schirmer's tests I and II were used to analyze the tear film quantitatively.

Operative procedure: All surgeries were performed under topical anaesthesia. During surgery, a corneal flap was made with a nasal hinge using a Moria M3 evolution microkeratome. Excimer laser (Star S4 IR) was used for stromal ablation and the corneal flap was repositioned back after the desired ablation. Patients were started on topical steroids in tapering doses, topical antibiotics and lubricating eye drops postoperatively.

Post-operative examination: All the patients were followed up on days 7, 1 month, 3 months, and 6 months. At each follow-up visit, the visual acuity, and refraction if required, as well as Schirmer's test with complete slit-lamp examination were also assessed.

Questionnaire used: The NEI RQL 42 is a questionnaire with 42 questions categorized into 13 subscales (5). All patients were evaluated for vision-correlated quality of life using the NEI RQL-42 questionnaire before surgery as a baseline, as well as at 1, 3, and 6 months after surgery. A single investigator verbally administered the NEI RQL-42 questionnaire after LASIK

in the English language. The subscale included questions assessing symptoms, vision clarity, dependence on correction, diurnal fluctuation, glare, expectations, appearance, near vision, far vision, activity limitations, suboptimal correction, worry, and satisfaction with correction. Every question includes choices with a score of 0–100 such that 0 represents the worst possible status and 100 the best possible status. To calculate subscale scores, every item in each subscale was averaged together. The higher the questionnaire score, the better the quality of life. The patients were asked a total of 42 questions before surgery as a baseline and again on post-operative visits at 1, 3, and 6 months. The questionnaire was translated into the patient's language using a standard forward and backward translation methodology wherever required.

The data were obtained at four intervals: before surgery and three times after surgery. Based on this, six comparison groups were created: pre-operative score-post-operative score (1 month), pre-operative score - post-operative score (3 months), pre-operative score - post-operative score (6 months), post-operative score (1 month) - post-operative score (3 months), post-operative score (1 month) - post-operative score (6 months), and post-operative score (3 months) - post-operative score (6 months). For each pair, the Wilcoxon signed-rank test was used to check if there were any differences.

Statistical analyses: The collected data were analyzed using IBM-SPSS (Statistical Products and Service Solution, version 21.0) computer software. The normality of the data was tested using a variety of approaches, including a visual inspection of histograms, normal Q-Q plots, and box plots, followed by descriptive statistics, and lastly by a confirmatory test i.e., Shapiro-Wilk's test. All the items of the NEI RQL- 42 questionnaires were found to be non-normally distributed. As a result, non-parametric tests were applied. The reliability of the NEI RQL- 42 questionnaire in the present population was examined using Cronbach's alpha. The Friedman test was used to assess expectancy before and after surgery at various intervals. Further, Wilcoxon signed-rank test was employed as a post-hoc test to investigate the difference at each time interval. In the current study, a P-value of 0.05 was used to determine the level of statistical significance.

Results

Patient demographics: The study included 71 myopic patients, out of which 29 (40.84%) were females and 42 (59.15%) were males. Patients enrolled ranged in age from 18 to 40 years old, with a mean age of 24.56 ± 2.51 years. The majority of the 44 patients (61.97%) were between the age group of 20-25 years. In myopic patients, the mean pre-operative spherical equivalent was -4.19 ± 2.28D in the right eye and -4.26 ± 2.28D in the left eye.

Clinical findings: Visual acuity, refraction, Schirmer, and pachymetry values over time are illustrated in Table 1. The baseline tear film of the patients was evaluated using Schirmer's test. The baseline tear film of the patients was evaluated using Schirmer's test. Pre-operatively, the mean value in the right eye was 23.47 ± 9.78 mm with a range from (10 mm-35 mm) and the mean value in the left eye was 24.13 ± 9.94 mm with a range from (10 mm-35 mm). A total of 12 participants (16.9%) had mild dry eyes before surgery. Postoperatively, the mean Schirmer's in the right eye was 21.11 ± 10.36 mm whereas the left eye was 22.07 ± 10.13 mm. After six months, the number of participants with mild dry eyes (grade 1) according to the Tear Film and Ocular Surface Society's Dry Eye WorkShop (TFOS DEWS) classification increased to 20 (28.16%). The data was collected from each individual four times at different intervals of time using the NEI RQL-42 questionnaire. The baseline tear film of the patients was evaluated using Schirmer's test. Pre-operatively, the mean value in the right eye was 23.47 ± 9.78 mm with a range from (10 mm-35 mm) and the mean value in the left eye was 24.13 ± 9.94 mm with a range from (10 mm-35 mm). Postoperatively, the mean Schirmer's in the right eye was 21.11 ± 10.36 mm whereas the left eye was 22.07 ± 10.13 mm. Except for the appearance, activity limitations, glare, and satisfaction with correction, all the subscales were found to have an internal consistency value greater than 0.7 because 0.7 is considered the acceptable value of Cronbach's alpha as per the literature (13-15). The comparison of the mean total score of the subscale of the NEI RQL-42 questionnaire is illustrated in Figure 1. It actually depicts the differences in life satisfaction before and after the surgery. Moreover,

Table 1. Visual acuity, refraction, Schirmer, and pachymetry values over time.

Parameters		Pre-op	Post-op (6m)	*t value*	*P–value*
Manifest Sphere	Mean ±SD	-4.05±2.49	-0.01±0.16	-17.725	<0.01
	Range	(-0.62)-(6.00)	(-1.00)-(0.75)		
Manifest Cylinder	Mean ±SD	-0.05±0.66	0.00±0.00	-5.531	<0.01
	Range	(-5.00)-(2.75)	(0.00)-(0.00)		
Manifest Spherical Equivalent	Mean ±SD	-3.84±1.90	-0.06±0.29	-19.481	<0.01
	Range	(-6.00)-(3.50)	(-1.25)-(0.75)		
Schirmer Test	Mean ±SD	18.44±13.20	13.57±13.26	10.145	<0.01
	Range	(15.00)-(35.00)	(9.00)-(35.00)		
Pachymetry	Mean ±SD	538.23±54.32	353.37±205.38	22.356	<0.01
	Range	(430.00)-(616.00)	(407.00)-(587.00)		

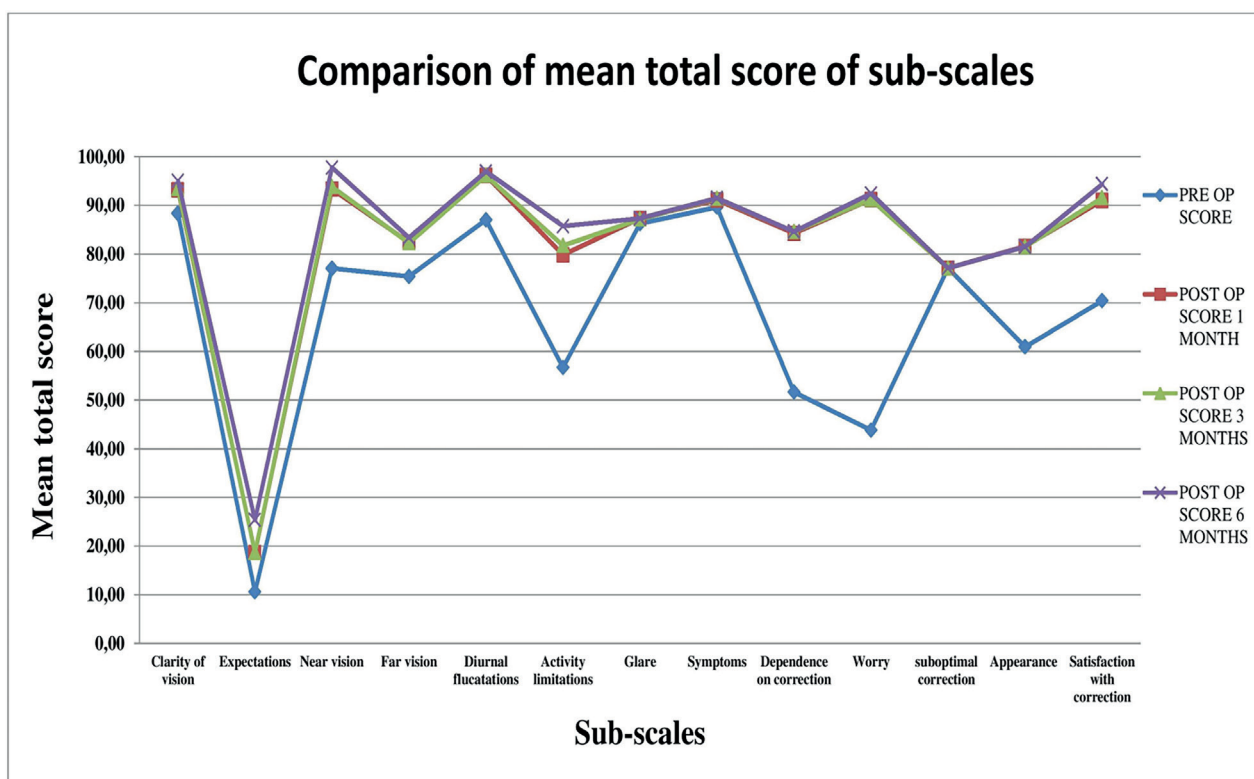Pre-op= Pre-operative, Post-op = Post-operative

Figure 1. Illustrates the comparison of the mean total score of subscales of the NEI RQL-42 questionnaire. Abbreviations: PRE-O: pre-operative; POST-OP: post-operative.

the descriptive statistics and reliability of the NEI-RQL-42 scale as illustrated in Table 2.

Further, the Friedman test was applied for statistical evaluation of the differences in satisfaction before and after surgery. Except for questions 24, 31, 32, 36B, 37B, 38B, 39B, 40B, 41B, and 42B, these differences were found to be statistically significant in almost 32 items of the NEI RQL-42 questionnaire (Table 3)

Table 2. Descriptive statistics and reliability of NEI-RQL-42 scale.

Sr. No.	Parameters (subscales)	Internal consistency	Sr. No.	Parameters (subscales)	Internal consistency
1.	Clarity of vision Pre	0.733	27.	Glare Post 3 months	0.598
2.	Clarity of vision Post 1 month	0.866	28.	Glare Post 6 months	0.609
3.	Clarity of vision Post 3 months	0.864	29.	Symptoms Pre	0.730
4.	Clarity of vision Post 6 months	0.899	30.	Symptoms Post 1 month	0.784
5.	Expectations Pre	0.763	31.	Symptoms Post 3 months	0.806
6.	Expectations Post 1 month	0.754	32.	Symptoms Post 6 months	0.774
7.	Expectations Post 3 months	0.754	33.	Dependence on correction Pre	0.552
8.	Expectations Post 6 months	0.893	34.	Dependence on correction Post 1 month	0.886
9.	Near vision Pre	0.740	35.	Dependence on correction Post 3 months	0.931
10.	Near vision Post 1 month	0.671	36.	Dependence on correction Post 6 months	0.931
11.	Near vision Post 3 months	0.681	37.	Worry Pre	0.963
12.	Near vision Post 6 months	0.875	38.	Worry Post 1 month	0.949
13.	Far vision Pre	0.770	39.	Worry Post 3 months	0.949
14.	Far vision Post 1 month	0.881	40.	Worry Post 6 months	0.953
15.	Far vision Post 3 months	0.865	41.	Suboptimal correction Pre	0.917
16.	Far vision Post 6 months	0.865	42.	Suboptimal correction Post 1 month	0.917
17.	Diurnal fluctuations Pre	0.552	43.	Suboptimal correction Post 3 months	0.917
18.	Diurnal fluctuations Post 1 month	0.707	44.	Suboptimal correction Post 6 months	0.917
19.	Diurnal fluctuations Post 3 months	0.707	45.	Appearance Pre	0.454
20.	Diurnal fluctuations Post 6 months	0.769	46.	Appearance Post 1 month	0.335
21.	Activity limitations Pre	0.582	47.	Appearance Post 3 months	0.325
22.	Activity limitations Post 1 month	0.571	48.	Appearance Post 6 months	0.365
23.	Activity limitations Post 3 months	0.583	49.	Satisfaction with correction Pre	NA
24.	Activity limitations post 6 months	0.637	50.	Satisfaction with correction Post 1 month	NA
25.	Glare Pre	0.591	51.	Satisfaction with correction Post 3 months	NA
26.	Glare Post 1 month	0.609	52.	Satisfaction with correction Post 6 months	NA

Abbreviations: NA: Not Applicable.

indicating statistically non-significant post-operative symptoms. Based on the findings of the Friedman test, the Wilcoxon signed-rank test was applied to all the statistically significant items. A total of 31 out of 32 items in the pre-operative and post-operative scores at 1 month were statistically significant. In the pre-operative score – post-operative score (3 months) pair, 29 out of 32 items were statistically significant. All 32 items were determined to be statistically significant in the pre-operative score – post-operative score (6 months) combination. Comparison of post-operative scores was statistically non-significant including 21 items in the post-operative score at 1- and 6-months pair and 20 items at 3 and 6 post-operative months. Based on these findings, it can be concluded that a period of six months after surgery produced the best surgical expectancy. NEI RQL-42 Subscale Average Scores (± SD) pre- and post-LASIK Surgery are illustrated in Table 4.

Subscale analysis: A comparison of pre-operative and post-operative scores demonstrated large differences with most scales of the NEI RQL-42 (Table 4).

Table 3. Statistical evaluation of difference in satisfaction before and after LASIK surgery for each question.

Parameters (Questions)	Friedman test		Parameters (Questions)	Friedman test		Parameters (Questions)	Friedman test	
	Chi-Square	P-value		Chi-Square	P-value		Chi-Square	P-value
Q1	43.190	<0.01	Q15	158.414	<0.01	Q29	36.000	<0.01
Q2	146.864	<0.01	Q16	144.477	<0.01	Q30	19.889	<0.01
Q3	45.245	<0.01	Q17	11.000	<0.05	Q31	3.000	>0.05
Q4	45.257	<0.01	Q18	17.831	<0.01	Q32	6.000	>0.05
Q5	42.000	<0.01	Q19	44.604	<0.01	Q33	63.561	<0.01
Q6	33.538	<0.01	Q20	69.667	<0.01	Q34	85.182	<0.01
Q7	36.412	<0.01	Q21	205.545	<0.01	Q35	126.615	<0.01
Q8	37.194	<0.01	Q22	203.351	<0.01	Q36B	No difference	-
Q9	37.000	<0.01	Q23	83.973	<0.01	Q37B	No difference	-
Q10	20.778	<0.01	Q24	6.375	>0.05	Q38B	No difference	-
Q11	180.949	<0.01	Q25	99.800	<0.01	Q39B	No difference	-
Q12	85.431	<0.01	Q26	149.523	<0.01	Q40B	No difference	-
Q13	60.500	<0.01	Q27	215.073	<0.01	Q41B	No difference	-
Q14	66.462	<0.01	Q28	29.769	<0.01	Q42B	No difference	-

Table 4. NEI RQL-42 Subscale Average Scores (±SD) pre and post-LASIK surgery.

Parameters	Pre-operative score (1)	Post-operative score 1 Month (2)	Post-operative score 3 Months (3)	Post-operative score 6 Months (4)	1 vs. 2(α)	1 vs. 3(α)	1 vs. 4(α)	2 vs. 3 (β)	2 vs. 4(β)	3 vs. 4(β)
Clarity of vision	88.35±24.08	93.16±18.31	93.40±17.96	95.04±16.93	<0.01	<0.01	<0.01	>0.05	<0.01	<0.01
Expectations	10.56±21.33	18.66±32.95	18.66±32.95	25.35±40.28	<0.01	<0.01	<0.01	>0.05	<0.01	<0.01
Near vision	77.08±26.52	93.34±15.57	93.84±15.31	97.77±11.47	<0.01	<0.01	<0.01	>0.05	<0.01	<0.01
Far vision	75.40±34.52	82.42±32.66	82.30±32.76	83.38±32.73	<0.01	<0.01	<0.01	>0.05	<0.05	<0.01
Diurnal fluctuations	87.03±22.99	96.13±15.84	96.13±15.84	96.95±15.13	<0.01	<0.01	<0.01	>0.05	>0.05	>0.05
Activity limitations	56.69±41.18	79.84±37.61	81.78±36.65	85.74±34.40	<0.01	<0.01	<0.01	>0.05	>0.05	>0.05
Glare	86.27±22.79	87.32±21.62	87.15±21.62	87.32±21.62	<0.05	<0.05	<0.05	>0.05	>0.05	>0.05
Symptoms	89.64±19.53	91.10±18.65	91.40±18.11	91.50±18.01	<0.05	<0.01	<0.01	>0.05	>0.05	>0.05
Dependence on correction	51.64±40.87	84.27±35.90	84.62±35.56	84.62±35.56	<0.01	<0.01	<0.01	>0.05	>0.05	>0.05
Worry	43.84±28.28	91.20±18.89	91.20±18.89	92.43±18.35	<0.01	<0.01	<0.01	>0.05	>0.05	>0.05
Suboptimal correction	77.11±40.56	77.11±40.56	77.11±40.56	77.11±40.56	>0.05	>0.05	>0.05	>0.05	>0.05	>0.05
Appearance	60.94±41.15	81.60±37.91	81.50±37.89	81.50±37.94	<0.01	<0.01	<0.01	>0.05	>0.05	>0.05
Satisfaction with correction	70.42±18.78	90.99±14.26	91.55±13.80	94.37±12.73	<0.01	<0.01	<0.01	>0.05	<0.01	<0.01

α- Freidman test; β- Wilcoxon ranked test

Results from the present study revealed that there is a significant improvement in all subscales post LASIK surgery at all post-operative visits as compared to pre-operative scores except for the subscale suboptimal correction. For subscales of clarity of vision, expectations, far vision, and near vision, there was no difference between post-operative scores at 1 month vs. 3 months.

For subscales of activity limitation and diurnal fluctuations, there was a significant difference between pre- and post-operative scores but there was no difference between post-operative scores at any time.

The subscale glare in the present study showed a statistically significant difference (P = 0.033) (worsening) for pre-operative vs. post-operative visits. However, there was no difference in the scores for glare between different post-operative visits. Subscales of dependence on correction, symptoms, and appearance showed no difference between any post-operative visits but were significant when compared to pre-operative scores.

The subscale satisfaction with correction was highly significant for all pre- vs. post-operative visits. However, there was a significant difference in scores between one and six months and no difference between the third vs. sixth months and the first vs. third months. This implied that maximum satisfaction with vision was attained at six months post-surgery attributing to post-LASIK changes, which become stable by 6 months according to our study.

Discussion

The present study attempts to evaluate the visual outcome and QoL post-LASIK surgery using a validated NEI RQL-42 questionnaire. Even though similar quality-of-life studies using the NEI RQL-42 questionnaire have been conducted post-LASIK in different countries (8,10-12,16), very few studies have been conducted on the Indian population. It is imperative to note that a range of social, cultural, and environmental factors influence QoL after LASIK surgery. To the best of our knowledge, this is the only study that compares pre-operative QoL data with different post-operative visits and among different post-operative visits. Based on these findings, it can be concluded that the best surgical expectancy results with respect to patient satisfaction and QoL were observed at 6 months post-LASIK surgery. Various studies have reported patient satisfaction in the range of 82% to 98% post-LASIK surgery (8,16). In the present study, the overall satisfaction rate was recorded to be 91.5%. The present results of patient satisfaction were consistent with those obtained by McGhee et al. (3) where 95.8% (n=46) of patients were satisfied overall with LASIK surgery and identified the aspects that inspire patients to pursue LASIK surgery for the correction of myopia.

The global patient satisfaction rate after surgery reported by Tahzib et al. (16) study was 92.2%. Whereas the study conducted by Bailey et al mentioned that 97% of the subjects were satisfied with their vision after LASIK and recommended the procedure to others (8). Thus, our study presented comparable results.

According to a study by McDonell et al. (17), LASIK surgery was associated with statistically significant (P=<0.05) improvements in scores for 11 of 13 scales for myopes and hyperopes combined, which was similar to the findings of the present study. The clarity of vision subscale was found to be non-significant in the case of the US population (17) whereas, in the present study, non-significant changes were observed in the suboptimal correction subscale. The scales that revealed the most dramatic changes in response (>25 points) to the surgical intervention were expectations, activity limitations, dependence on correction, appearance, and satisfaction with correction (P= <0.001). Although the changes were less stark, LASIK surgery also was associated with improvements in near and far vision and a reduction in diurnal fluctuations in vision, symptoms, worry, and perceptions about having suboptimal correction. This was again comparable to the findings of the present study except for perceptions about having suboptimal correction which was not statistically significant (P =1.00).

Garamendi et al. (18) used the QoL Impact of Refractive Correction (QIRC) questionnaire in pre-presbyopic myopic patients who had undergone LASIK refractive surgery and found enhancement in QoL which was more in females. The results of a study conducted by Nichols et al. (6) using the NEI RQL-42 questionnaire tool also show that persons who had

undergone refractive surgery have a better quality of life. Chen and Manche found that wavefront-guided LASIK provided a clinically quantifiable increase in vision and remarkable enhancements in individual quality of life and functional vision one year after surgery (19). A study by Chen et al. (20) concluded that myopia corrected with spectacles or contact lenses had a negative impact on some areas of vision-related QoL. Individuals with myopia who had refractive surgery enjoyed the same vision-related quality of life as those with emmetropia.

The NEI RQL-42 questionnaire has been used previously to study QoL changes post-LASIK. Orthokeratology stood similar to LASIK regardless of visual improvement and Soft Contact Lens wear was higher to LASIK. In contrast, Shams et al. using the NEI RQL-42 questionnaire revealed that the QoL score was higher in emmetropes (95.11 ± 4.23) than in people who underwent refractive surgery (86.98 ± 4.73) (11).

The findings of this study may be utilized to create item banks that will allow for a thorough and accurate assessment of the quality of life related to refractive errors, which is another important aspect of the research.

The limitation of the present study is the small sample size. A larger cohort of patients and comparison with emmetropes would be more desirable. Another limitation of the study was the lack of Rasch analysis due to the paucity of resources and lack of data on hyperopes, thus restricting the study to myopes. Despite limitations related to the subjectivity of these evaluations, the NEI RQL-42 provides us with valuable information regarding the potential sources of patient dissatisfaction in the Indian population.

Conclusion

To the best of our knowledge, this is the only study that uses a comprehensive tool like the NEI RQL-42 questionnaire to study QoL post-LASIK surgery in the Indian population. This study also compares QoL at different post-operative periods (1, 3, and 6 months) and found that the best surgical expectancy and QoL can be expected at 6 months post-surgery.

We recommend appropriate patient counselling and discussion with regard to surgical expectancy and QoL.

Recommendations

We recommend that patients undergoing LASIK (corneal refractive surgery) should be thoroughly advocated for the probable side effects of the planned procedure. We also recommend using standardized methods, such as validated patient questionnaires and applying them to patients before and after the LASIK surgical procedure. It is of utmost importance to determine the patients' motivation and expectations before refractive surgery, since the relationship between patient expectations, the outcome of surgical procedure, and patient satisfaction is multifaceted and the clinical outcome does not always directly correlate with the subjective outcome.

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